

WHAT IS CLAIMED IS:

1. A method of managing a database that includes a plurality of sections, each of the sections comprising a plurality of data records, the method comprising:

receiving a new data record and a key that is associated with the new data record;

identifying one of the sections based upon the associated key of the new data record;

deleting one or more data records from the identified section if the identified section does not have sufficient space to contain the new data record; and

storing the new data record in the identified section.

2. The method of Claim 1, wherein deleting one or more data record includes identifying one or more data records according to a ranking function.

3. The method of Claim 2, wherein the ranking function is a least recently used algorithm.

4. The method of Claim 2, wherein the ranking function is a function of the statistical properties of the data being stored.

5. The method of Claim 1, wherein each of the plurality of sections is an integer multiple of the page size that is used by an operating system to transfer data between a primary storage and a secondary storage.

6. The method of Claim 1, wherein each of the sections is about the same page size that is used by an operating system to transfer data between a primary storage and a secondary storage.

7. The method of Claim 1, additionally comprising allocating a contiguous memory space to contain each of the sections.

8. A program storage device storing program instructions that when executed perform the program comprising:

receiving one or more new data records, each of the new data records having an associated key;

identifying a section from a plurality of sections, the identifying based upon the associated key of the new data record;

deleting one or more data records from the identified section if the identified section does not have sufficient space to contain the new data record;

5 and

storing the new data record in the identified section.

9. The program storage device of Claim 8, wherein deleting one or more data record includes identifying one or more data records according to a ranking scheme.

10 10. The program storage device of Claim 9, wherein the ranking scheme identifies which ones of the data records are the least recently used.

11. The method of Claim 8, wherein each of the sections is about the same size that is used by an operating system to transfer data between a primary storage and a secondary storage.

15 12. A database system for managing data records, the system comprising:  
a plurality of sections, each of the sections being about the same memory size that is used by an operating system to transfer data between a primary storage and a secondary storage; and

20 a control program which receives a request for the storage of a data record, the control program selecting one of the sections based upon a key and storing the data record in the selected section.

25 13. The database system of Claim 12, wherein the control program determines whether the selected section contains sufficient unused space to hold the data record, and if the section does not have sufficient space, the control program removing selected data records according to a ranking function.

14. The database system of Claim 13, wherein the ranking function determines a last access time for each of the data records or the selected sections.

15. The database system of Claim 12, wherein at least one of the sections includes at least one item of section information.

30 16. The database system of Claim 15, wherein the section information includes the number of data records that are contained in the section.

17. The database system of Claim 15, wherein the section information includes an offset from the beginning of the section to the first unused position within the section.

5 18. The database system of Claim 15, wherein the section information includes a section number that is associated with the section.

19. The database system of Claim 12, additionally comprising a client application which provides the storage request of the data record and the key to the control program.

10 ~~20.~~ A database system for managing information items, the system comprising:

a plurality of sections; and

15 a control program which receives a request for the storage of a data record, the control program selecting one of the sections and storing the data record in the selected section, the control program determining whether the selected section contains sufficient unused space to hold the data record, and if the section does not have sufficient space, the control program removing selected data records according to a ranking function.

21. The database system of Claim 20, wherein the ranking function determines an access time for each of the data records or the selected sections.

20 22. The database system of Claim 20, wherein each of the data records stores at least one user profile.

23. The database system of Claim 20, wherein at least one of the sections includes at least one record of section information.

25 24. The database system of Claim 23, wherein the section information includes the number of data records that are contained in the section.

25. The database system of Claim 23, wherein the section information includes an offset from the beginning of the section to the first unused position within the section.

30 26. The database system of Claim 23, wherein the section information includes a section number that is associated with the section.

27. The database system of Claim 20, additionally comprising a client application which provides the storage request of the data record and the key to the control program.

5 28. The database system of Claim 20, wherein the size of each of the sections is an integer multiple to the transfer size that is used by an operating system to transfer data between a primary storage and a secondary storage.

29. The database system of Claim 20, wherein the size of each of the sections is about equal to the transfer size that is used by an operating system to transfer data between a primary storage and a secondary storage.

10 30. A system for managing a database that includes a plurality of sections, each of the sections comprising a plurality of data records, the method comprising:

means for receiving one or more new data records, each of the new data records having an associated key;

15 means for identifying one of the sections based upon the associated key of the new data record;

means for deleting one or more data records from the identified section if the identified section does not have sufficient space to contain the new data record; and

20 means for storing the new data record in the identified section.

31. The system of Claim 30, wherein the means for deleting one or more data record includes means for identifying one or more data records according to a ranking function.

25 32. The system of Claim 30, wherein the ranking function identifies which ones of the data records that are the least recently used.

33. The system of Claim 30, wherein the database occupies a single contiguous physical memory space.

30 34. The system of Claim 30, wherein the size of each of the sections is an integer multiple to the page size that is used by an operating system to transfer data between a primary storage and a secondary storage.

35. The system of Claim 30, wherein the size of each of the sections is about equal to the page size that is used by an operating system to transfer data between a primary storage and a secondary storage.

5 36. A database system for managing information records, the system comprising:

a primary storage;

a secondary storage having a plurality of pages;

10 a plurality of sections, wherein each of the sections is adapted to contain one or more data records, and wherein each of the sections resides in the secondary storage on one of the plurality of pages; and

a control program which receives a request for the retrieval of a data record, the control program retrieving the data record from the secondary storage and storing the data record in the primary storage, wherein the retrieval operation reads at most one page from the secondary storage.

15 37. A database system for managing information items, the system comprising:

a primary storage;

a secondary storage having a plurality of pages;

20 a plurality of sections, each of the sections independent of each of the other sections such that an error in one of the sections does not affect any of the other sections; and

a control program which receives a request for the retrieval of a data record, the control program retrieving the data record from the secondary storage so that the data record is stored in the primary storage.

25 38. A database system for managing information items, the system comprising:

a client application;

a primary storage comprising a plurality of pages;

a secondary storage comprising a plurality of pages;

30 a caching subsystem for copying pages from the primary secondary storage to the pages in the primary storage and vice-versa;

a database data structure having a plurality of sections, each of the sections residing on one of the pages in the primary storage and/or the secondary storage; and

5 a database manager which receives requests from the client application to store a data record in the database data structure, wherein the database manager selects one of the sections and stores the data record in the selected section, and wherein the database manager determines whether the selected section contains sufficient unused space to hold the data record, and wherein if the section does not have sufficient space, the database manager removes selected data records  
10 according to a ranking function.